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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/656,057 | 09/05/2003 | Ronald E. Steele | RD8350USNA | 9391 |

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| EXAMINER | |
|---|---|
| BUTLER, PATRICK | |
| **ART UNIT** | **PAPER NUMBER** |
| 1791 | |

| NOTIFICATION DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/656,057 | STEELE, RONALD E. | |
| | Examiner | Art Unit | |
| | Patrick Butler | 1791 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *31 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) *6* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwinn (US Patent No. 6,234,390).

With respect to Claims 1 and 6, Schwinn teaches a method of making a melt spun polyamide filament (abstract). Schwinn teaches supplying polyamide polymer to a solid phase polycondensation apparatus (SPP) (see col. 6, lines 61-64). The polymer is in the range of about 40 to about 60 RV, and viewing Schwinn's RV value of about 40 as one significant digit, it necessarily reads on 35-45, which includes the claimed range of 36-38 RV (see col. 7, line 30). Moreover, by stating that suitable polymer RV value is provided if the RV is about 40, Schwinn directly teaches the use of a RV within Applicant's claimed range of 36-38 (see MPEP 2144.05 I). Moreover, if the claimed ranges and prior art ranges were to not be considered to overlap via a limited interpretation of "about 40" to exclude 38, the claimed range of 36-38 and Schwinn teaching about 40 are close enough that one skilled in the art would have expected them to have the same properties (see MPEP 2144.05 I). A nitrogen purge gas is supplied at 23-51 $m^3$/min. and polymer is supplied from 1460 to 1870 lb./hr. (see col. 7, lines 56-59; col. 8, lines 36-40; and Table 1). The gas has a dew point of –20C to 20 C

(see col. 8, line 66 through col. 9, line 1). Gas sent through the SPP vessel 16 to remove water is directed back into the SPP vessel at the inlet 24 to constitute 50% of purge gas (humidifying a purge gas with water vapor; treating a nitrogen-comprising purge gas with water vapor) (see col. 8, lines 56-60; col. 9, lines 15-21). The ratio of the flow rates ($^{\text{kg purge gas/hour}}/_{\text{kg polymer/hour}}$) is 1.9 to 5.5 (see calculations below), which reads on the claimed range of about 2 to about 3.

| $N_2$ flow rate ($m^3$/min) | Conversion 1.185 kg/$m^3$ of $N_2$ at STP | dimensional conversion 60 min./hr. | $N_2$ flow rate kg./hr. |
|---|---|---|---|
| 23 | 1.185 | 60 | 1635 |
| 51 | 1.185 | 60 | 3626 |

| polymer mass flow | |
|---|---|
| lb./hr. | kg./hr. |
| 1460 | 663 |
| 1660 | 754 |
| 1870 | 849 |

| purge gas flow rate kg./hr. | polymer flow rate kg./hr. | mass flow ratio of purge gas to polymer |
|---|---|---|
| 1635 | 663 | 2.5 |
| 3626 | 663 | **5.5** |
| 1635 | 754 | 2.2 |
| 3626 | 754 | 4.8 |
| 1635 | 849 | **1.9** |
| 3626 | 849 | 4.3 |

Schwinn teaches conveying the polymer to a melt extruder and extruding the melted polyamide polymer through a spinneret to form at least one continuous filament (see col. 16, lines 22-30).

Schwinn does not appear to explicitly teach that the solid phase polycondensation system pressure is within the claimed range (e.g., 110 to 120 kPascal). However, in this regard, Schwinn further teaches that a constant amount of gas per unit time is to be maintained with positive pressure in the SPP vessel (see col. 8, lines 27-33). As such, Schwinn obvious recognizes that the solid phase polycondensation system pressure is a result-effective variable. Since the solid phase polycondensation system pressure would be a result-effective variable, one of ordinary skill in the art would have obviously determined the optimum the solid phase polycondensation system pressure applied in the process of Schwinn through routine experimentation based upon maintaining the desired amount of gas flow and positive pressure in the SPP vessel.

Moreover, since the vessel is pressurized to only 2 psig (see col. 8, lines 27-33), the only additional pressure to atmospheric pressure would be the pressure to drive the gas through the flake (see col. 8, lines 27-33), which would be about 110-120 kPascal.

The examiner recognizes that all of the claimed effects and physical properties are not positively stated by the reference(s). Note however that the reference teaches all of the claimed ingredients, process steps and process conditions and thus, the claimed effects (filaments with a yarn RV of about 51-54) and physical properties would necessarily be achieved by carrying out the disclosed process. If it is applicants' position that this would not be the case: (1) evidence would need to be presented to support applicants' position; and (2) it would be the examiner's position that the application contains inadequate disclosure in that there is no teaching as to how to

obtain the claimed properties and effects by carrying out only these steps. Thus, Schwinn teaches the claimed process result of the filaments with a yarn RV of about 51-54 principally because it teaches the claimed ingredients and claimed process steps.

With respect to Claim 2, the filaments are quenched, which is a type of cooling, this quenching and cooling (see col. 13, lines 30-34).

With respect to Claim 3, the filament is coated with a spin finish, which reads on the broadly claimed "post-treating" (see col. 13, lines 30-34), and is wound around several rollers 178, 178, and 180 (see Fig. 4), which reads on the broadly claimed "winding".

With respect to Claim 5, as previously described in Claim 1, Nitrogen is purge gas and a ratio of 1.9-5.5 is obtained, reading on the claimed range of 2-3.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwinn (US Patent No. 6,234,390) as applied to claim 3 above, and further in view of Eberius (US Patent No. 4,034,034).

With respect to Claim 4, Schwinn teaches a process for making a synthetic melt spun polyamide filament as previously described.

Schwinn does not explicitly teach wiping the spinneret plate on the capillary exit side, in cycles, wherein each wiling cycle is separated by about 8 to about 12 hours.

Eberius teaches making a polyamide filament and wiping the spinneret in a cycle of 8 hours, which reads on the claimed range.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to wipe the spinneret as taught by Eberius in the process as taught

by Schwinn because drippings, deposits, and encrustations easily form on the spinneret, and to prevent disruptions to production and formation of expected package size (see Eberius, col. 1, lines 32-64 and col. 2, lines 62-69).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwinn (US Patent No. 6,234,390) as applied to claim 3 above, and further in view of Fourné (*Synthetic Fibers*, p. 359).

With respect to Claim 4, Schwinn teaches a process for making a synthetic melt spun polyamide filament as previously described.

Schwinn does not explicitly teach wiping the spinneret plate on the capillary exit side, in cycles, wherein each wiling cycle is separated by about 8 to about 12 hours.

Fourné teaching wiping the first 5-15 cm below the spinneret, which would include the spinneret, at regular intervals (cycle) to avoid monomer growth (first paragraph of section 4.7.5.1).

Schwinn in view of Fourné does not appear to explicitly teach that the wipe cycle frequency is within the claimed range (e.g., every 8-12 hours). However, in this regard, Fourné further teaches wiping at regular intervals to avoid monomer growth on the spinneret area (first paragraph of section 4.7.5.1). As such, Fourné obvious recognizes that the wipe cycle frequency is a result-effective variable. Since the wipe cycle frequency would be a result-effective variable, one of ordinary skill in the art would have obviously determined the optimum the wipe cycle frequency applied in the process of Schwinn in view of Fourné through routine experimentation based upon minimizing disruptive monomer build-up.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to wipe the spinneret as taught by Fourné in the process as taught by Schwinn in order to minimize disruptive monomer build-up.

***Response to Arguments***

Applicant's arguments filed 31 October 2007 have been fully considered but they are not persuasive.

Applicant argues with respect to the 35 USC § 103(a) rejections. Applicant's arguments appear to be on the grounds that:

1) Schwinn's polyamide polymer flake of 40-60 does not encompass 36-38 because Schwinn's preferred range is 45-50, which emphasizes 40 is the bottom of the suitable range.

2) Schwinn does not add water vapor to the purge gas. Instead, Schwinn removes water vapor from the purge gas by reducing its humidity.

3) Adding water vapor to Schwinn would destroy the goal of achieving an RV of the flake greater than 90 (see col. 11, lines 63-64).

4) Schwinn teaches using a very low dew point temperature circulating gas in the SPP vessel, which requires rigorously avoiding water vapor.

The Applicant's arguments are addressed as follows:

1) Schwinn is relied upon for all that it teaches, which includes "about 40" (see col. 7, line 30). The polymer is in the range of about 40 to about 60 RV, and viewing Schwinn's RV value of about 40 as one significant digit, it necessarily reads on 35-45, which includes the claimed range of 36-38 RV (see col. 7, line 30).

2 and 4) Schwinn is relied upon for all that it teaches, not merely teachings of some drying of purge gas. Gas sent through the SPP vessel 16 to remove water via extraction from the flakes in the SPP vessel is directed back into the SPP vessel at the inlet 24 to constitute 50% of purge gas (see col. 8, lines 56-60; col. 9, lines 15-21). Thus, before the gas passes through inlet 24, it has had water vapor added to in during its time in the SPP vessel.

2 and 4) Therefore, regardless of the amount of purge gas that routes through the drying system 14, the purge gas passing through inlet 24 has been humidified by the water in the SPP vessel 16 (see col. 8, lines 56-60; col. 9, lines 15-21).

3) Schwinn's teaching of the purge gas has passing through inlet 24 previously being humidified by the SPP vessel 16 (see col. 8, lines 56-60; col. 9, lines 15-21) necessarily provides humidification of the purge gas. Thus, discussion of motivation to further humidify the purge gas is moot.

4) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., not minimizing the amount of water vapor present in the purge gas) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Butler whose telephone number is (571) 272-

8517. The examiner can normally be reached on Mon.-Thu. 7:30 a.m.-5 p.m. and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patrick Butler
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Art Unit 1791

CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER